Original Research Article

The Prevalence of Postoperative Symptoms within 24 Hours after Ambulatory Surgery in a University Hospital

Adlin Dasima AK (✉), Karis M

Faculty of Medicine, Universiti Teknologi MARA, Sungai Buloh Campus, Jalan Hospital, 47000 Sungai Buloh, Selangor, Malaysia.

Abstract

Ambulatory surgery has now becoming increasingly popular and it is generally well accepted. Major complications following ambulatory surgery are very rare but certain postoperative symptoms can be very unpleasant and distressing to the patients. Follow-up phone calls regarding their well being at home following the surgery may give us the clue and allow us to identify certain problems that can be sorted out immediately or as a reference for a better service in future. The present study was carried out to determine the prevalence of common postoperative symptoms and their subsequent effects within 24 hours after ambulatory surgery by follow-up phone calls. We prospectively studied 199 ASA I and II patients, but only 187 patients were analyzed. Patients had undergone general surgery, orthopaedic, urology, gynaecology or ear, nose and throat (ENT) surgery. Pain was scored based on Numerical Rating Scale (NRS). Majority of patients (70.8%) had only mild pain prior to discharge home. At 24 hours postoperatively, pain was the commonest symptom reported (92.5%) followed by sleepiness (72.2%), dizziness (49.7%), sore throat (17.1%), nausea and vomiting (7.5%) and headache (7%). Sleep was mildly affected in nearly 50% of the patients. Fifty seven percent of patients did not need assistance in performing daily activities during the 24 hours, post surgery. Majority of patients were satisfied (81.3%) with ambulatory surgery. In conclusion, pain was the commonest postoperative symptom encountered following the surgery. Sleep was mildly affected by the postoperative symptoms. Most of the patients did not need assistance in performing their daily activities following surgery. All patients were able to return to at least more than 50% of their normal daily activities at 24 hours after the surgery. Overall satisfaction towards ambulatory surgery was good.

Keywords: Ambulatory surgery, day care, pain, postoperative nausea and vomiting, satisfaction

Correspondence:

Adlin Dasima Abdul Kadir. Faculty of Medicine, Universiti Teknologi MARA, Sungai Buloh Campus, Jalan Hospital, 47000 Sungai Buloh, Selangor. Tel: 03-61265000 Fax: 03-6126707 Email: adasima_37@yahoo.com

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Introduction

The number of cases being performed as ambulatory surgery is increasing as a consequence of advances in surgical and anaesthetic techniques as well as greater acceptance by the medical staff and patients (1,2,3,4,5,6). There are several advantages of ambulatory surgery which included recovery at home in familiar environment, reduced risks of cancellation, waiting time, hospital-acquired infections and venous thromboembolism. Furthermore, inpatient beds could be released for major surgical cases, improved throughout and easier booking (7).

A great emphasis on early discharge after surgery and anaesthesia requires identification of selected criteria that can be used to determine when patients can safely go home under the care of their family or friends (8,9). Previous studies on postoperative symptoms following ambulatory surgery had concentrated mainly on the pre-discharge period as early discharge home is a priority but the data on the symptoms on the early postoperative days were lacking (9).

Many studies have shown that major complications following ambulatory surgery are extremely rare but minor symptoms still occur frequently in the postoperative period. Although, post discharge symptoms are seldom serious or life threatening, they can be unpleasant and distressing to the patients, delaying recovery and resumption of usual activities and routines. In few cases, these may

increase the costs of overall medical care as well (1,2,8,10).

Postoperative pain management is a very important element that needs to be emphasized when considering ambulatory surgery. Previous reports showed a high incidence of pain after day surgery. Pain and other uncomfortable symptoms not only cause discomfort and suffering, but also prevent the patients from resuming their daily activities, which can be of major socio-economic relevance (6, 11,12,13).

Other than pain, the second most common postoperative symptoms include headache, drowsiness, nausea and vomiting (1,2,3,9). These symptoms are usually related to the duration of anaesthesia, laparoscopic surgery and younger patients (1,2,3). Patients may have all these symptoms even though they do not have them prior to discharge from ambulatory surgery unit (9).

The other symptoms such as postoperative sore throat can be very troublesome to the patients even though the prevalence is not very high compared to other symptoms mentioned earlier (9). The prevalence is usually related to duration of surgery and types of airway management. Patients who were intubated with endotracheal tube had greater risk of sore throat followed by laryngeal mask airways and then lowest with face masks (14).

Post ambulatory surgery follow-up is very important as the patients involved are sometimes not only compromised physically but also emotionally and socially. Follow-ups may be in the form of completing a survey sheet at home by the patients or by making a phone call directly to the patients (15). Phone calls are more advantageous as it can play as an important method to ensure patient safety once they leave the health care facility and to see how they are coping at home, and also it can provide immediate and timely feedback for improvement (16). Favourable impression can be created with a caring and compassionate call. Patients can be satisfied and happy to know that the medical personnel are still concerned about them even though they have been discharged from the health care (15,16).

The results of this study may be used to improve the quality of care for patients undergoing ambulatory surgery in our local settings in a university hospital.

Materials and Methods

This observational study was conducted following approval from the Dissertation Committee, Department of Anaesthesiology and Intensive Care and the Research and Ethics Committee, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre (UKMMC) (FF–336–2011). A total of 199 ASA I and II patients, age ranging between 18 to 70 years old were recruited in this study. Patients who could not communicate verbally, were excluded.

Upon patient's arrival to ambulatory surgery unit, they were approached by the anaesthetic doctors and written informed consent was obtained for the patients to participate in the study. Prior to surgery, baseline demographic data and details of the patients' history (risk factors for postoperative nausea and vomiting and history of side effects of analgesics) were collected.

The anaesthetic management was at the discretion of the individual anaesthetist. The collected intraoperative data included the surgical discipline, the anaesthetic drugs given including analgesics, antiemetics and duration of surgery. In the recovery area, IV fentanyl 25-50 μg was given when the patients complained of pain and titrated to effect.

All patients were discharged from ambulatory surgery unit when they fulfilled the criteria for discharge as per the unit protocol. Prior to discharge, pain score was documented based on numerical rating scale (NRS) (0 = no pain, 10 = the worst pain possible). Pain was then further graded into mild (NRS scale 1 to 3), moderate (4 to 6) and severe (7 to 10). Analgesics were prescribed as per individual surgeon preference and these involved combination of paracetamol and tramadol or non-steroidal anti-inflammatory drugs (NSAIDS). Patients were informed that they were going to receive a phone call at home in the evening of postoperative day 1 (about 24 hours from the time of discharge from the ambulatory surgery unit). A checklist was provided to the patient and to be brought back home. The checklist contained the anticipated questions that were asked during the follow-up phone calls as the patient can keep their own records within the 24 hours after the surgery before the phone calls were expected.

The phone calls were made up to four attempts. It utilized a standardized checklist, which included questions regarding the presence of pain, nausea and vomiting, sore throat, headache, dizziness and sleepiness. The standardized checklist also included questions regarding the effects of the postoperative symptoms to patients' sleep, percentage of their return to normal daily activity (0 to 100%), any unplanned visit to clinic or emergency department or readmission to the hospital and also patients overall satisfaction towards ambulatory surgery.

Statistical analysis was performed using Statistical Package for Social Sciences (SPSS version 19.0 Chicago, IL) software. Data were analyzed using

descriptive statistics and reported as numbers, percentage and means where appropriate.

Results

A total of 199 patients consented to participate in this study. Twelve patients dropped out later; six patients because of surgical factors and another six patients could not be contacted. The demographic data, surgical disciplines and mean duration of surgery are shown in Table 1 and Table 2.

Ninety-nine patients (55.1%) received IV granisetron 1 mg and 4 patients (2.1%) received IV dexamethasone 4 mg as a prophylaxis for postoperative nausea and vomiting intraoperatively. Prior to discharge from ambulatory surgery unit, the highest pain score was NRS 4, which contributed to 2.1% of total patients, the majority of patients (70.8%) had only mild pain and 17.1% of patients were pain free.

Overall, patients showed a very good response to follow-up phone calls (96.8%). Hundred and thirty patients (69.5%) responded on first attempt, 37 patients (19.8%) on second attempt, 16 patients (8.6%) on third attempt and four patients (2.1%) on fourth attempt.

The percentage of patients with postoperative symptoms within 24 hours after ambulatory surgery was shown in Figure 1. The percentage of patients who had mild pain was 46.3%, 52% of patients had moderate pain and only 1.7% of patients had severe pain.

Figure 2 showed the number of patients and the pain score among the different surgical discipline at 24 hours post surgery. Majority of patients had moderate pain (52%). The general surgery and orthopaedic groups had the highest number of patients having mild pain, the orthopaedic group had the highest number of patients with moderate pain, while the general surgery was the only group who had patients with severe pain.

Table 3 showed the differences in pain score among different surgical discipline at two different time intervals. Prior to discharge, general surgery group had the highest mean pain score and gynaecology group had the lowest pain score. At 24 hours after surgery, general surgery group still had the highest mean pain score while urology group had the lowest mean pain score. Overall, mean pain score prior to discharge was lower than mean pain score at 24 hours after surgery.

Table 4 showed the differences among surgical disciplines in terms on how sleep was affected by the postoperative symptoms. Majority of patients

Table 1: Demographic data. Values are expressed as number with percentage in parenthesis and mean ± standard deviation (SD) as appropriate.

		n = 187
Gender	Male	95 (50.8)
	Female	92 (49.2)
Ethnic	Malay	112 (59.9)
	Chinese	48 (25.7)
	Indian	21 (11.2)
	Others	6 (3.2)
	Age (year)	38.6 ±13.5
	BMI (kg/m^2)	24.4 ±3.8
ASA	I	146 (78.1)
	II	41 (21.9)

Table 2: Distribution of cases according to different surgical disciplines and mean duration of surgery. Values are expressed as numbers with percentage in parenthesis and mean ± SD as appropriate.

Surgical discipline	**n = 187**
ENT	20 (10.7)
Gynaecology	28 (15.0)
Urology	45 (24.1)
Orthopaedic	46 (24.6)
General Surgery	48 (25.7)
Duration of surgery (min)	55.8 ± 30.5

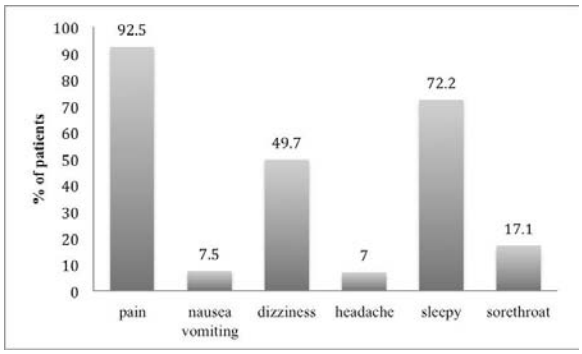

Figure 1: Percentage of patients with postoperative symptoms within 24 hours after ambulatory surgery

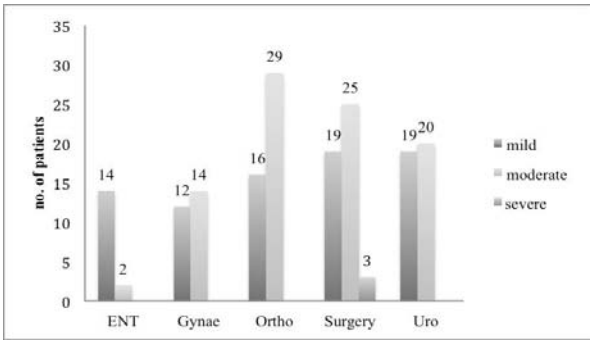

Figure 2: Number of patients and the pain score among the different surgical discipline at 24 hours post surgery

Table 3: Differences in pain score among different surgical discipline at two different time intervals. Values are expressed as number (n) and mean ± SD

Surgical Disciplines	n	Pain score prior to discharge	Pain score at 24 hours after surgery
ENT	20	1.30 ± 0.86	2.05 ± 1.32
Gynaecology	28	0.93 ± 0.98	3.29 ± 1.18
Orthopaedic	46	2.00 ± 0.82	3.85 ± 1.40
General Surgery	48	1.65 ± 1.00	4.08 ± 1.78
Urology	45	1.56 ± 0.89	2.91 ± 1.52

Table 4: Differences on how postoperative symptoms affecting sleep among surgical disciplines. Values are expressed as number (n) and percentage in parenthesis

Surgical Disciplines	Sleep Affected		
	No	Mild	Moderate
ENT	9 (15.5)	9 (9.7)	2 (5.6)
Gynaecology	6 (10.3)	18 (19.4)	4 (11.1)
Orthopaedic	14 (24.1)	22 (23.7)	10 (27.8)
General Surgery	14 (24.1)	20 (21.5)	14 (38.9)
Urology	15 (26.0)	24 (25.7)	6 (16.6)
Total	58 (100)	93 (100)	36 (100)

had their sleep mildly affected by the postoperative symptoms which urology group contributed the most. General surgery group had the highest percentage of patients whom their sleeps were moderately affected by the postoperative symptoms. Urology group had the highest percentage of patients whom their sleeps were not affected at all by the postoperative symptoms.

Out of 129 patients who had their sleep affected, three patients (2.3%) had no pain, 44 patients (34.1%) had mild pain, 79 patients (61.2%) had moderate pain and three patients (2.3%) had severe pain.

Table 5 showed the differences in performing daily activities among surgical disciplines. Majority of patients (57.2%) did not need assistance compared to 47.8% of patients needed assistance in performing daily activities during the 24 hours post surgery. Those patients who needed assistance the most were the patients who underwent orthopaedic surgery (35%). The post urological surgery group had the highest number of patients who did not require assistance (33.6%).

Table 6 showed the differences among surgical disciplines in terms of returning to normal daily activities within 24 hours after the surgery. ENT group had the highest mean percentage of returning to normal daily activities and the rest of the groups had a comparable mean percentage of returning to normal daily activities.

None of the patients needed to go to clinic, emergency department or required readmission during the 24 hours post surgery.

In terms of overall satisfaction towards ambulatory surgery, majority of patients (81.3%) were satisfied, 18.1% of patients were very satisfied and only one general surgery patient (0.5%) was very dissatisfied.

Discussion

This study managed to obtain a good response from the patients, which 96.8% of patients responded to the follow-up phone calls. The phone calls were made during daytime specifically in the afternoon or evening, about 24 hours after the surgery. This may be the reason for the high response rate as patients may be spending the night time for rest and would not want to answer any phone calls at that particular time. A study had shown that first postoperative day, late afternoon or early evening was the best time to call. First day may not be the best time to call as patients reported not feeling well enough to talk on the phone (14).

Pain is usually the commonest expected symptoms for any surgery including ambulatory surgery. Pain is usually assumed to be mild and can be ignored following ambulatory surgery. In this study, 92.5% of patients reported had pain at 24 hours after surgery and majority of them had moderate pain. These findings were similar to the two previous studies done before that showed that majority of patients had moderate pain following ambulatory surgery (2,11). In our study, the mean pain score prior to discharge was lower as compared to mean pain score 24 hours after surgery. These findings were comparable to the previous study done in 2004 (2). The lower pain score prior to discharge was

Table 5: Differences in performing daily activities among surgical disciplines. Values are expressed as number (n) and percentage.

Surgical Disciplines	Perform Daily Activity	
	Without assist	Need assist
ENT	19 (17.8)	1 (1.3)
Gynaecology	7 (6.8)	21 (26.3)
Orthopaedic	18 (16.8)	28 (35.0)
General surgery	27 (25.2)	21 (26.3)
Urology	36 (33.6)	9 (1.3)
Total	107 (100)	80 (100)

Table 6: Differences in the mean percentage of returning to normal activities among surgical disciplines. Values are expressed as number (n) and mean ± SD.

Surgical Disciplines	% Return to normal daily activities	
	n	Mean ± SD
ENT	20	81.0 ± 12.0
Gynaecology	28	71.8 ± 8.84
Orthopaedic	46	69.9 ± 10.0
General Surgery	48	70.0 ± 14.4
Urology	45	74.4 ± 10.3

expected as the effect of analgesics given intraoperatively was still there and when patient went back home the timing of taking analgesic might be delayed for any reasons.

The occurrence of postoperative pain was also related to the type of surgery done. In this study, three patients from the general surgery group, specifically post inguinal hernia repair patients had reported severe pain. Overall, post orthopaedic surgery and general surgery contributed the highest percentage of patients having moderate pain. Patients who had undergone ENT surgery contributed the highest percentage of patients having mild pain. These findings showed that that type of ambulatory surgical procedure did influence the 24-hour postoperative pain (3).

The second commonest symptom in our study was sleepiness, followed by dizziness, sore throat, nausea and vomiting and headache. The higher incidence of sleepiness and dizziness might be due to the residual effects of anaesthethic agents as patients were interviewed early during the follow-up phone calls, 24 hours post surgery. The incidence of nausea vomiting was low and this was expected in this era of anaesthesia as newer agents such as propofol, which has antiemetic effect and the use of antiemetic agent such as granisetron, a 5HT3 antagonist were advocated.

Presence of postoperative symptoms can be expected to affect sleep. In this study nearly half of the patients reported that their sleep was mildly affected. Previous study has shown that 47% of patients had their sleep affected due to the impact of pain at 24 hours after discharge (11). In our study, out of 129 patients whom their sleep was affected, 61.2% of patients had moderate pain.

The severity of postoperative symptoms will determine how far a patient needed assistance in performing their daily activities. In this study, even though the incidence of pain was high, majority of patients were able to be independent in performing their daily activities. None of the patients were significantly affected with their postoperative symptoms, which can make them confine to bed.

The patients who needed assistance the most were the orthopaedic group and this was expected as this surgical discipline involved surgery to the patients' upper or lower limbs. This would significantly affect patient's movement. A study has shown that 82.4% of patients needed assistance on first postoperative day and subsequently the percentage reduced down to sixth postoperative day (4). In our study, post gynaecological surgery patients were the second most group who needed assistance post surgery. This was because of feeling of bloatedness and majority of patients underwent tubal ligation, which they were still in the confinement period and still in the period of recovering after delivery.

The aim of ambulatory surgery was to get the patient return to their normal activities as soon as possible. All patients managed to achieve a minimal of 50% of their normal daily activities despite

having postoperative symptoms. The ENT group reported the highest mean percentage of returning back to normal daily activities. This finding was expected as ENT surgery did not involve the major part of the body that may restrict patient's mobilization and performance. Previous study showed that patients who had 24-hour postoperative symptoms had a decreased return to daily living function by 16% compared to those who had no postoperative symptoms. The patients in this study had the higher percentage of returning back to daily living function as only 26.9% of patients had incisional pain (3).

Our study found out that overall satisfaction towards ambulatory surgery was good which 81.3% of patients were satisfied. Only one patient (0.5%) was very dissatisfied. The patient was unsatisfied because initially the team was unsure which surgeon was going to operate on her and when the surgeon came, he never reviewed the patient before and he only examined the patient on the operating table just before he started to perform the surgery. This was a serious matter and should be looked into in the future.

Conclusion

The prevalence of postoperative symptoms 24 hours after ambulatory surgery was the highest for pain which majority of patients reported as having moderate pain, followed by sleepiness, dizziness, sore throat, nausea and vomiting and headache. Majority of patients only had mild pain prior to discharge from ambulatory surgery unit and moderate pain at 24 hours, post surgery. Sleep was mildly affected by the postoperative symptoms in majority of patients. Most of patients did not need assistance in performing their daily activities after surgery. In general, all patients are able to return to more than 50% of their normal daily activities at 24 hours after the surgery. Overall satisfaction towards ambulatory surgery was good.

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